

Final

Site Investigation Report

**Range 30, Confidence Course (Firing Line), Parcel 88Q
Former Rifle/Machine Gun Range, Parcel 102Q
Former Grenade Range/Area, Parcel 106Q-X
Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08)
Grenade Court (OA-15)
Unnamed Small Arms Range**

**Fort McClellan
Calhoun County, Alabama**

Prepared for:

**U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602**

Prepared by:

**Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923**

**Task Order CK10
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Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Task Order CK10, Shaw Environmental, Inc. completed a site investigation (SI) at Range 30, Confidence Course (Firing Line), Parcel 88Q; Former Rifle/Machine Gun Range, Parcel 102Q; Former Grenade Range/Area, Parcel 106Q-X; Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08); Grenade Court (OA-15); and Unnamed Small Arms Range at Fort McClellan in Calhoun County, Alabama. The SI was conducted to determine whether chemical constituents are present at the site at concentrations that pose an unacceptable risk to human health or the environment. The SI consisted of the collection and analysis of 39 surface soil samples, 33 subsurface soil samples, 2 surface water/sediment samples, 1 depositional soil sample, and 5 groundwater samples. In addition, five permanent monitoring wells were installed at the site to facilitate groundwater sample collection and to provide site-specific geological and hydrogeological characterization information.

Chemical analysis of samples collected at the site indicates that metals, volatile organic compounds (VOC), herbicides, and pesticides were detected in site media. In addition, one explosive compound was detected in one groundwater sample. To evaluate whether the detected constituents pose an unacceptable risk to human health or the environment, analytical results were compared to human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for Fort McClellan. Site metals data were further evaluated using statistical and geochemical methods to select site-related metals.

Although the site is projected for either industrial or active recreation reuse, the analytical data were screened against residential human health SSSLs to evaluate the site for unrestricted land reuse. VOCs, herbicides, and pesticides were sporadically detected in site media at concentrations below SSSLs. Metals in soil (i.e., aluminum, antimony, chromium, iron, manganese, and vanadium) and surface water (arsenic, lead, and thallium) exceeded SSSLs and background and, thus, were selected as chemicals of potential concern. The statistical and geochemical evaluations determined that the metals detected in site media were naturally occurring except for copper and lead in two surface soil samples each and lead in one surface water sample. The elevated copper and lead results in soil, however, were below their respective SSSLs and do not pose a threat to human health. Although lead exceeded its SSSL and background in one surface water sample, the lead result may be elevated because the sample was turbid. By comparison, metals concentrations in the other surface water sample collected at the site, which had much lower turbidity, were all lower or not detected except for an estimated thallium detection. Specifically, the lead concentration in the less turbid sample was nearly 19

1 times lower and was below background. Furthermore, the SSSL is the U. S. Environmental
2 Protection Agency action level for lead in tap water. Because the incidental nature of exposure
3 to surface water is expected to be far less intense than exposure to tap water, the SSSL is judged
4 to be overly conservative. Therefore, lead in surface water is not expected to pose a threat to
5 human health.

6
7 Eleven metals in surface soil and seven metals in surface water exceeded ESVs and background
8 and were selected as constituents of potential ecological concern (COPEC). The pesticide endrin
9 and the herbicide MCPP were also identified as COPECs because they were detected at
10 estimated concentrations exceeding their respective ESVs in one of six surface soil samples each.
11 These chemicals were not detected in any other samples collected except for a very low-level
12 detection of endrin in one subsurface soil sample. The ESVs are highly conservative values
13 based on no-observed-adverse-effects levels or the most health-protective values available.
14 Given the conservatism of the ESVs and the relatively small amounts by which these chemicals
15 exceeded their ESVs, endrin and MCPP are not expected to pose a threat to ecological receptors.

16
17 With respect to the metals identified as COPECs, the statistical and geochemical evaluations
18 determined that they were naturally occurring except for lead and copper in two surface soil
19 samples each and lead in one surface water sample. Copper and lead concentrations in surface
20 soil exceeded their respective ESVs and background in only one and two samples, respectively,
21 out of 40 samples. All other copper and lead results in surface soil were below ESVs and/or
22 background indicating that the aforementioned results are not representative of nominal sitewide
23 levels. In surface water, lead exceeded its ESV and background in one sample that was turbid,
24 which is believed to have contributed to the elevated lead concentration. Based on the foregoing
25 considerations, copper and lead are not expected to pose a threat to ecological receptors at the
26 site.

27
28 Based on the results of the SI, past operations at the Range 30 Firing Line Area have minimally
29 impacted the environment. However, the metals and chemical compounds detected in site media
30 do not pose an unacceptable risk to human health and the environment. Therefore, Shaw
31 recommends "No Further Action" and unrestricted land reuse with regard to hazardous
32 substances regulated by the Comprehensive Environmental Response, Compensation and
33 Liability Act for the area of investigation at Range 30, Confidence Course (Firing Line), Parcel
34 88Q; Former Rifle/Machine Gun Range, Parcel 102Q; Former Grenade Range/Area, Parcel
35 106Q-X; Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08); Grenade Court
36 (OA-15); and Unnamed Small Arms Range.

1.0 Introduction

The U.S. Army has selected Fort McClellan (FTMC), located in Calhoun County, Alabama, for closure by the Base Realignment and Closure (BRAC) Commission under Public Laws 100-526 and 101-510. The 1990 Base Closure Act, Public Law 101-510, established the process by which U.S. Department of Defense (DOD) installations would be closed or realigned. The BRAC Environmental Restoration Program requires investigation and cleanup of federal properties prior to transfer to the public domain. The U.S. Army is conducting environmental studies of the impact of suspected contaminants at parcels at FTMC under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE contracted Shaw Environmental, Inc. (Shaw) (formerly IT Corporation [IT]) to perform the site investigation (SI) at Range 30, Confidence Course (Firing Line), Parcel 88Q; Former Rifle/Machine Gun Range, Parcel 102Q; and Former Grenade Range/Area, Parcel 106Q-X, under Contract Number DACA21-96-D-0018, Task Order CK10. In addition, all or portions of three other ranges described in the *Archives Search Report* (ASR) (USACE, 2001a) were investigated as part of this SI. For the sake of brevity, the SI area of investigation is hereinafter referred to as the Range 30 Firing Line Area unless otherwise specified.

This report presents specific information and results compiled from the SI, including field sampling and analysis and monitoring well installation activities conducted at the Range 30 Firing Line Area.

1.1 Project Description

Parcels 88Q, 102Q, and 106Q-X were identified as areas to be investigated prior to property transfer. The parcels were classified as Category 1 Qualified parcels in the environmental baseline survey (EBS) (Environmental Science and Engineering, Inc. [ESE], 1998). Category 1 parcels are areas where no storage, release, or disposal of hazardous substances or petroleum has occurred. The parcels, however, were qualified because chemicals of potential concern may be present as a result of historical range activities. Parcel 106Q-X was also qualified (X) for potential unexploded ordnance (UXO).

A site-specific work plan, comprised of a field sampling plan (SFSP), a safety and health plan, and a UXO safety plan, was finalized in January 2002 (IT, 2002a). The work plan was prepared to provide technical guidance for SI field activities at the Range 30 Firing Line Area. The site-specific work plan was used as an attachment to the installation-wide work plan (IT, 1998) and the installation-wide sampling and analysis plan (SAP) (IT, 2000a; IT, 2002b). The SAP includes the installation-wide safety and health plan and quality assurance plan.

The SI included fieldwork to collect 39 surface soil samples, 33 subsurface soil samples, 2 surface water/sediment samples, 1 depositional soil samples and 5 groundwater samples to determine whether potential site-specific chemicals are present at the site.

1.2 Purpose and Objectives

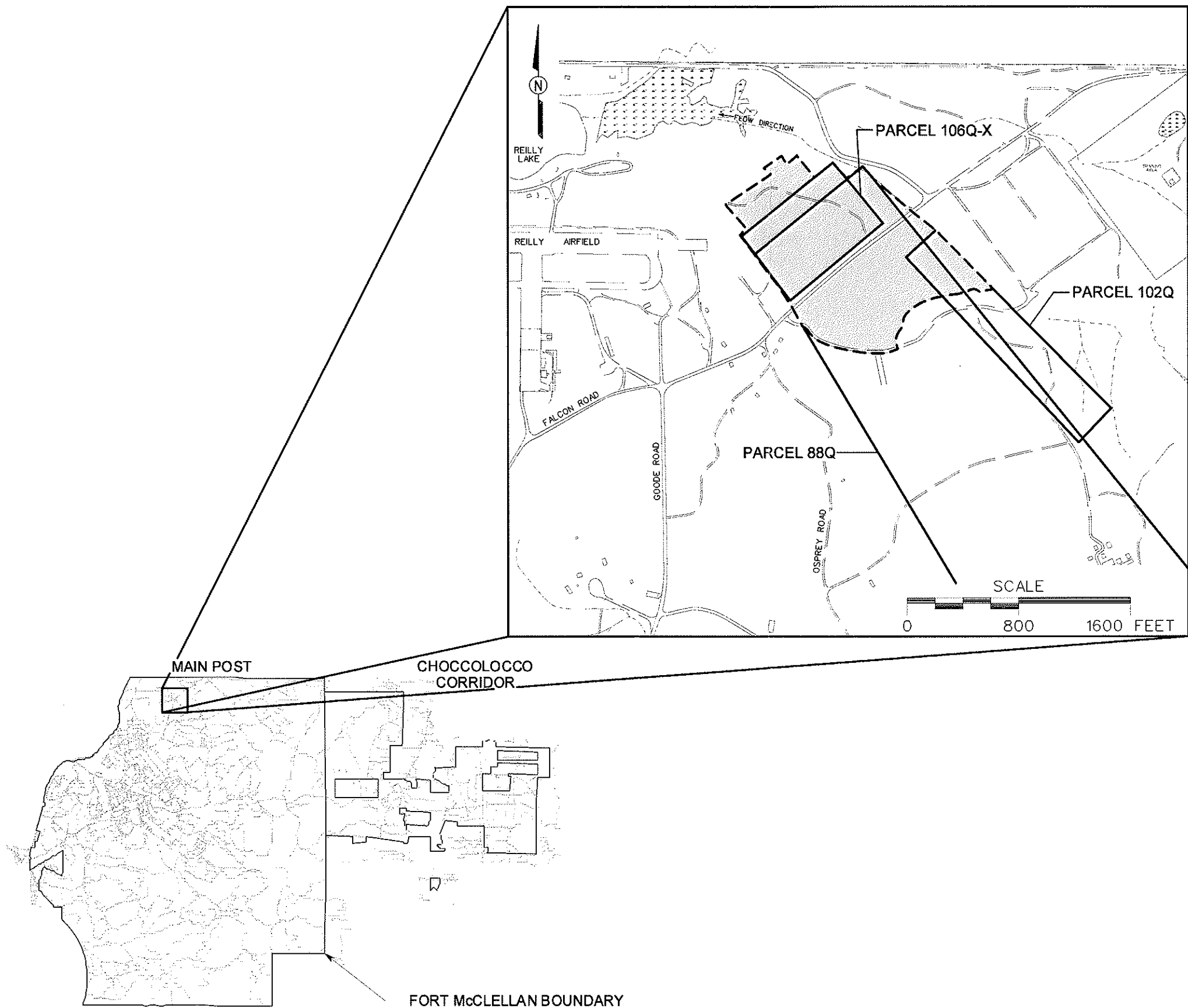
The SI program was designed to collect data from site media and provide a level of defensible data and information in sufficient detail to determine whether chemical constituents are present at the Range 30 Firing Line Area at concentrations that pose an unacceptable risk to human health or the environment. The conclusions of the SI in Chapter 6.0 are based on the comparison of the analytical results to human health site-specific screening levels (SSSL), ecological screening values (ESV), and background screening values for FTMC. The SSSLs and ESVs were developed by Shaw as part of the human health and ecological risk evaluations associated with SIs being performed under the BRAC Environmental Restoration Program at FTMC. The SSSLs and ESVs are presented in the *Final Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000b). Background metals screening values are presented in the *Final Background Metals Survey Report, Fort McClellan, Alabama* (Science Applications International Corporation [SAIC], 1998). Site metals data were also evaluated using statistical and geochemical methods to determine if the metals were site related.

Based on the conclusions presented in this SI report, the BRAC Cleanup Team will decide either to propose “No Further Action” or to conduct additional work at the site.

1.3 Site Description and History

The Range 30 Firing Line Area is located in the northern part of the Main Post at FTMC, east of Reilly Airfield (Figure 1-1). Parcels 88Q, 102Q and 106Q-X are the primary ranges of concern for the area of investigation as defined in the EBS (ESE, 1988). Although the range fans for Parcels 88Q and 106Q-X cover a much larger area, the SI was limited to an approximately 24-acre area that incorporated all of Parcel 106Q-X, approximately one-third of Parcel 102Q, and that portion of Parcel 88Q located northwest of the Fill Area at Range 30 (Parcel 231[7]) and an adjacent dirt road (Figure 1-2). The area covered in the associated range fans is being addressed separately by the Army.

Parcel 88Q. Range 30, Confidence Course, Parcel 88Q, is located in the northern part of the Main Post and was used from 1977 until sometime between 1983 and 1989 (ESE, 1998). The entire area occupied by Range 30 is approximately 545 acres. The portion of Parcel 88Q included in this SI is bounded by Reilly Airfield to the west, and Parcel 231(7) and an unpaved



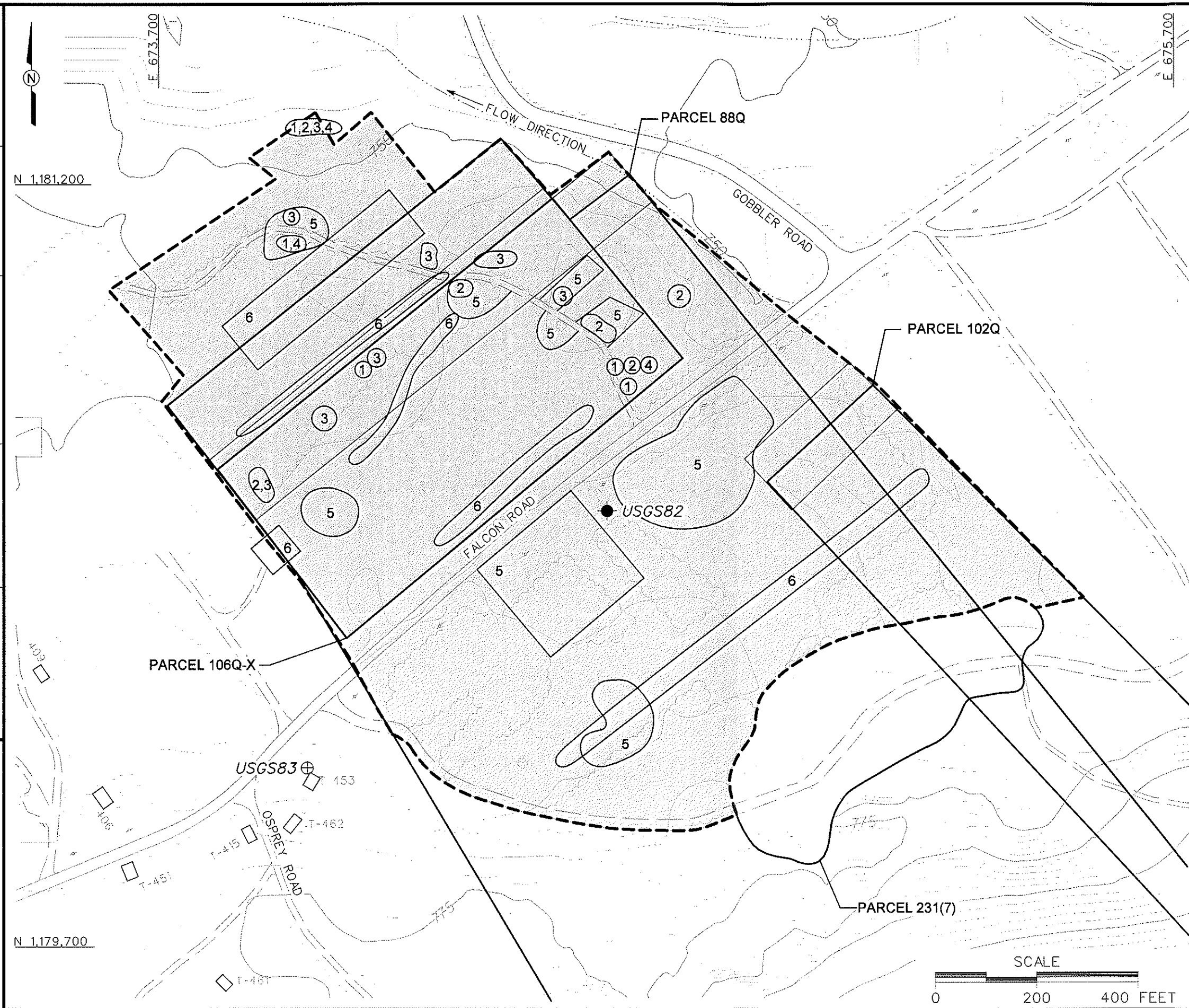
LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TREES / TREELINE
- MARSH / WETLANDS
- PARCEL BOUNDARY
- AREA OF INVESTIGATION
- SURFACE DRAINAGE / CREEK
- FENCE

FIGURE 1-1
SITE LOCATION MAP
RANGE 30, CONFIDENCE COURSE
(FIRING LINE), PARCEL 88Q
FORMER RIFLE/MACHINE GUN RANGE,
PARCEL 102Q
FORMER GRENADE RANGE/AREA,
PARCEL 106Q-X

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MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

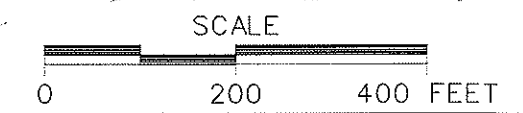
DWG NO.: 1796887es.4.48
 PROJ. NO.: 796887
 INITIATOR: D. ALAN
 PROJ. MGR.: V. VACOUB
 DRAFT CHCK. BY: S. MORAN
 EVGR CHCK. BY: S. MORAN
 DATE LAST REV.:
 DRAWN BY: D. BOVAR
 STARTING DATE: 05/ 5/02
 01/20/07
 01/20/07



- LEGEND**
- UNIMPROVED ROADS AND PARKING
 - PAVED ROADS AND PARKING
 - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
 - TREES / TREELINE
 - AREA OF INVESTIGATION
 - FIRING LINES
 - SURFACE DRAINAGE / CREEK
 - UTILITY POLE
 - EXISTING USGS BEDROCK MONITORING WELL LOCATION
 - EXISTING USGS RESIDUUM MONITORING WELL LOCATION

- APPROXIMATE LOCATION OF OBSERVED FEATURES**
- ① MISCELLANEOUS DEBRIS
 - ② MOUNDS
 - ③ DEPRESSIONS
 - ④ METAL DEBRIS
 - ⑤ DISTURBED AREA IDENTIFIED ON AERIAL PHOTOGRAPHS
 - ⑥ BERM LOCATION IDENTIFIED ON AERIAL PHOTOGRAPHS

FIGURE 1-2
SITE MAP
 RANGE 30, CONFIDENCE COURSE
 (FIRING LINE), PARCEL 88Q
 FORMER RIFLE/MACHINE GUN RANGE
 PARCEL 102Q
 FORMER GRENADE RANGE/AREA,
 PARCEL 106Q-X
 U. S. ARMY CORPS OF ENGINEERS
 MOBILE DISTRICT
 FORT McCLELLAN
 CALHOUN COUNTY, ALABAMA
 Contract No. DACA21-96-D-0018



1 road to the south. The range was inactivated sometime between 1983 and 1989. Ordnance fired
2 at this range consisted of M-16 blanks, flares, and simulators (ESE, 1998). Historically, M-60
3 and 0.30-caliber ordnance was used. Range 30 was used for end-of-cycle training and has not
4 been used since the mid-to-late 1980s (ESE, 1998). End-of-cycle tests were the last phase of
5 basic training prior to graduation.

7 Based on the location of Reilly Airfield to the west of Range 30, and the position of the firing
8 line and the orientation of the range fan presented in the EBS, the direction of fire was most
9 likely to the southeast. The impact area is not identified in the EBS. However, based on the
10 probable direction of fire, the impact area is most likely the hillside southeast of the area of
11 investigation. The probable Range 30 impact area is being addressed in a separate investigation.

13 **Parcel 102Q.** According to the EBS, Parcel 102Q is one of seven former rifle/machine gun
14 ranges that were identified in the northern part of the Main Post (ESE, 1998). The dates of
15 operation and types of ordnance fired at these ranges are unknown. According to historical
16 maps, four ranges were in use in 1917. However, it is unclear which four of the seven former
17 ranges were active at that time. The remaining three ranges appear on later historical maps
18 (1959 and 1966).

20 Based on the orientation of the firing lines and range fans presented in the EBS, the direction of
21 fire for Parcel 102Q was to the southeast. Impact areas for these ranges were not identified in
22 the EBS. Based on the orientation of the firing lines and range fans, the most likely impact area
23 is the hillside located southeast of the firing lines (Figure 1-2). The likely impact area for Parcel
24 102Q is being addressed in additional investigations.

26 Parcel 102Q is located south of Falcon Road near its intersection with Gobbler Road. During SI
27 site walks conducted in October 2001, it was noted that the majority of the area of investigation
28 was covered with grass, with the exception of shrubs and trees growing along the western
29 boundary and another strip of shrubs and trees located to the east of the firing line for Parcel
30 102Q.

32 **Parcel 106Q-X.** The Former Grenade Range/Area, Parcel 106Q-X, was identified in the
33 northern part of the Main Post on a 1959 Army map. The exact size of the range, the types of
34 ordnance used, and the operational dates are not known (ESE, 1998). Parcel 106Q-X is
35 approximately 10 acres in size and overlaps parcel 88Q. The EBS identified the impact area for
36 Parcel 106Q-X to be in the southern portion of the parcel, within the SI area of investigation. No

1 impact areas were noted during the October 2001 site walk. Review of available aerial
2 photographs did not confirm the presence of the Former Grenade Range/Area.

3
4 During the SI site walks, high grass, thick shrubs, and dense woods were observed over most of
5 the area of investigation. In the southeastern corner of Parcel 88Q, miscellaneous debris and a
6 few small mounds were noted. The debris consisted of cinder blocks, sandbags, and one
7 5-gallon can. Along the eastern portion of Parcel 88Q, several small mounds and depressions
8 were noted. The majority of these mounds and depressions appeared to be old foxholes.

9
10 Along the northeastern boundary of Parcels 88Q and 106Q-X, mounds were found containing
11 miscellaneous debris consisting of pieces of concrete, stone, and metal. This area appears to be
12 associated with the Fill Area East of Reilly Airfield, Parcel 227(7). Three temporary monitoring
13 wells, installed as part of the investigation of Parcel 227(7), were encountered during the site
14 walk.

15
16 Immediately north of Parcel 106Q-X, several small depressions and one mound with metal
17 debris (consisting of corrugated metal pipe and razor wire) were found during the site walk.
18 Along the firing line of Parcel 88Q, several additional small mounds and depressions were noted.
19 A majority of the depressions and mounds appeared to be old foxholes. No berms or other
20 evidence suggesting an impact area were noted during the October 2001 site walk at Parcel 88Q
21 and 106Q-X.

22 23 **1.3.1 Archives Search Report Ranges**

24 In addition to Parcels 88Q, 102Q, and 106Q-X described in the EBS, three other ranges (areas)
25 are shown in the area of this investigation on Plates 5, 6, and 10 of the ASR (USACE, 2001a).
26 Figure 1-3, taken from the ASR map plates, shows the additional ranges present in the area of
27 investigation are primarily from World War II through 1973. Represented plates from the ASR
28 are:

- 29
- 30 • Plate 5 – World War II to 1950 Range Use
- 31 • Plate 6 – 1950 to 1973 Range Use
- 32 • Plate 10 – Cumulative Map of All Ranges (circa 1915 to 1996).
- 33

34 Table 1-1 briefly describes the ASR ranges and impact areas. Only two of these ranges (Tank
35 Sub-Caliber Range/Carbine Transition Range [R-32]/ Machine Gun Range [R-34], hereinafter
36 referred to as OA-08, and Grenade Court [OA-15]) are described in the ASR. The other range is
37 not named or described in the ASR and is referred to as an Unnamed Small Arms Range.

Table 1-1

ASR Range Descriptions
Range 30 Firing Line Area, Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Calhoun County, Alabama

Range Name	ASR Number	Site Description	Plate 5 ^a	Plate 6 ^a	Plate 10 ^a	Impact Area Location
Tank Sub-Caliber Range/ Carbine Transition Range (R-32)/ Machine Gun Range (R-34)	OA-08	This range underwent at least three transitions between World War II and 1973. According to the ASR, during the 1950's sub-caliber devices for use in tank main guns, including 37mm ammunition with black powder charges, were fired from 14 firing points. By 1958, the range was changed into a Carbine Transition Range (R-32). Before 1967, the range was used for machine gun field firing (R-34). Maps indicate the range layout has changed often with different orientations. Based on the location of Reilly Airfield to the northeast and the location firing line of Parcel 88Q in the EBS the most likely direction of fire from these ranges would have been to the southeast.	X	X	X	The impact area is not identified in the ASR. However, based on the orientation of the range, the most likely impact location is the hillside south of Falcon Road. This area will be addressed separately.
Grenade Court	OA-15	According to the ASR, the Grenade Court was used during World War II. The 1950 range map shows the range as a Hand Grenade Court with 12 bays. By 1958, the Grenade Court has been abandoned. The location of the Grenade Court appears to coincide with the EBS former Grenade Range/Areas Parcel 106Q-X.		X	X	The ASR does not identify the impact area. A likely impact area could not be inferred from the orientation of the range, determined from the review of the available aerial photographs, or by observations made during the site walk by Shaw personnel in October 2001.
ASR Unnamed Small Arms Range	NA	ASR Unnamed Small Arms Range appears on the electronic file for Plate 5 (not on the hard copy included in the ASR). Plate 5 represents the time period from World War II to 1950. Based on the orientation of the range fan, the firing line appears to be north of Falcon Road and the impact are south of Falcon Road terminating at the base of a hill. This small arms range has a similar orientation as Parcels 88Q and 102Q.	X Electronic File Only.		X	The impact area is not identified by the ASR. However, based on the location of Reilly Airfield and the orientation of the range the most likely impact location is the hillside south of Falcon Road.

^a Corresponds to the map plate number from the **Archive Search Report, Maps, Fort McClellan, Anniston, Alabama**.

NA - Not assigned a parcel number or described in the EBS or ASR.

ASR - **Archive Search Report, Maps, Fort McClellan, Anniston, Alabama**, USACE, September, 2001.

X - Denotes the figure where the listed range is shown in this report. Figure 1-3 shows the historical ranges from the ASR (also shows the EBS parcels).

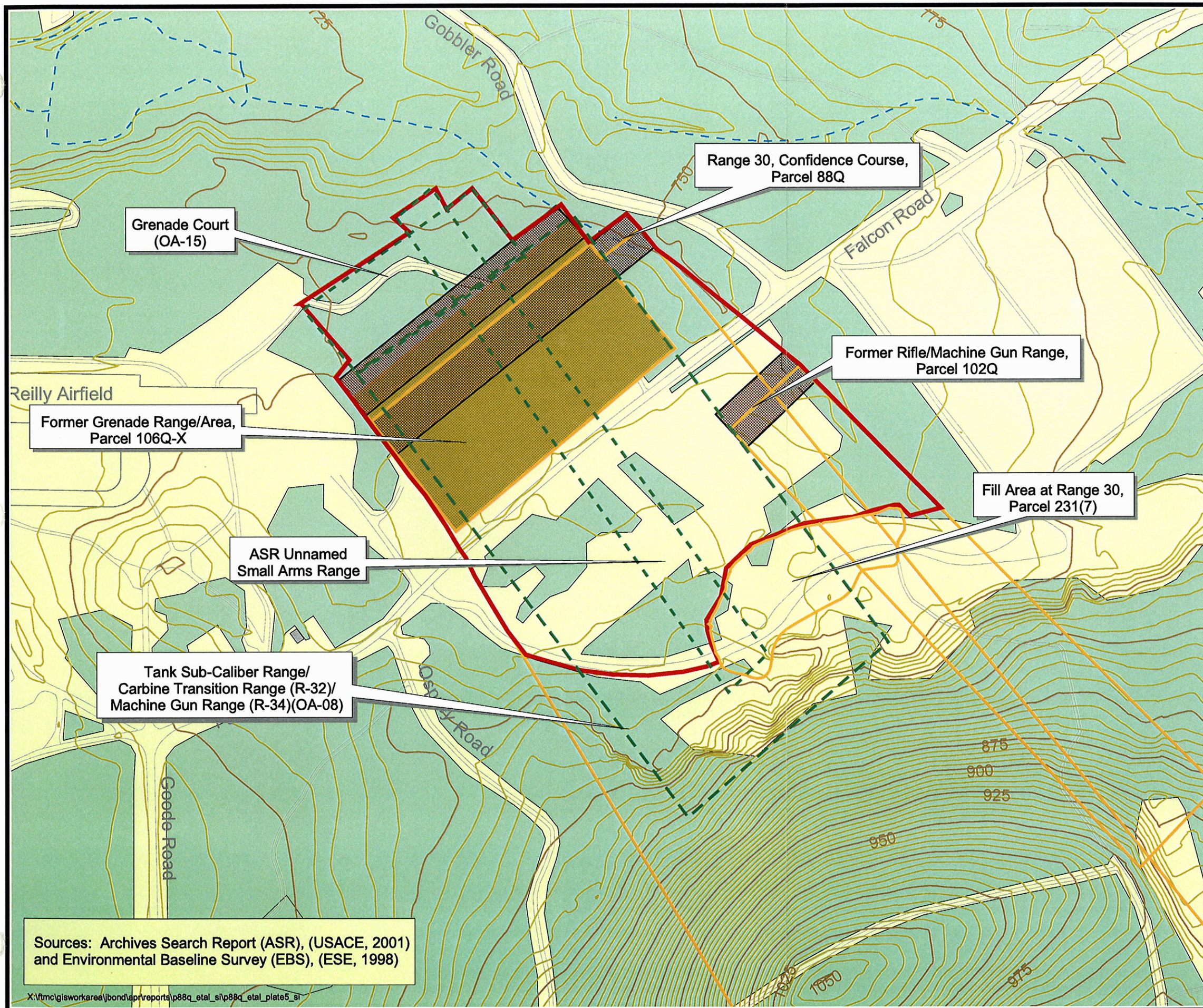
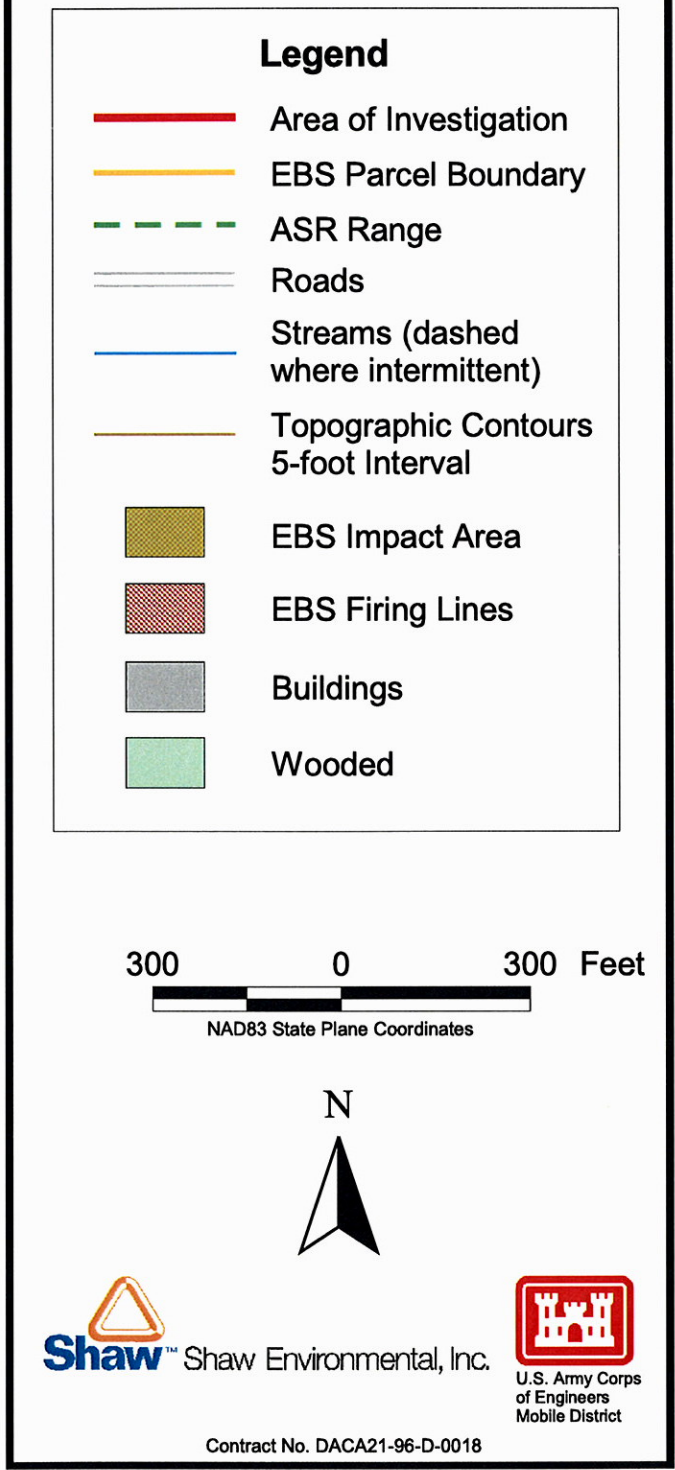


Figure 1-3
Range Location Map,
ASR Plate 5
Range 30 Firing Line Area
Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Alabama



1 **Tank Sub-Caliber/Carbine Transition/Machine Gun Range (OA-08).** OA-08 overlaps
2 Parcels 88Q and 106Q-X and extends on both the north and south sides of Falcon Road (Figure
3 1-3). According to the ASR, OA-08 underwent at least three transitions between World War II
4 and 1973. During the 1950s, sub-caliber devices for use in tank main guns, including 37mm
5 ammunition with black powder charges, were fired from 14 firing points. By 1958, the range
6 had changed into a Carbine Transition Range (R-32). Before 1967, the range was used for
7 machine gun field firing (R-34) (USACE, 2001a). The maps indicate that the range layout has
8 changed often resulting in various orientations.

9
10 Based on the position of Reilly Airfield to the west and the orientation of the range fan, the most
11 likely direction of fire from these ranges would have been to the southeast. The ASR does not
12 identify the impact area for OA-08. However, based on the orientation of the ranges, the impact
13 area appears to be the hillside south of Falcon Road (Figure 1-3). The portion of OA-08 located
14 north of Parcel 231(7) and an adjacent dirt road is included in this SI. The portion of the range
15 located south of the dirt road and Parcel 231(7) will be addressed separately.

16
17 **The Grenade Court (OA-15).** The Grenade Court (OA-15) is shown on Plate 6 in the ASR.
18 The Grenade Court is located north of Parcel 88Q and partially overlaps Parcel 106Q-X.
19 According to the ASR, the Grenade Court was used during World War II and was abandoned by
20 1958. The 1950 range map shows the range as a Hand Grenade Court with 12 bays (USACE,
21 2001a). The location of the Grenade Court appears to coincide with the general location of the
22 Former Grenade Range/Area, Parcel 106Q-X, described in the EBS. The firing line and impact
23 area were not identified in the ASR, and could not be determined from the orientation of the
24 range or from a review of available aerial photographs.

25
26 **Unnamed Small-Arms Range.** The Unnamed Small-Arms Range does not appear on the
27 hard-copy (paper) version of ASR Plate 5. However, the range is depicted in the electronic file
28 version. The range also appears on the hard-copy version of Plate 10 of the ASR as part of the
29 cumulative map of all ranges for FTMC. The small-arms range is oriented northwest-southeast,
30 overlapping Parcels 88Q and 106Q-X (Figure 1-3).

31
32 Based on the position of Reilly Airfield to the west and the location of the firing line of Parcel
33 88Q, the most likely direction of fire at the small-arms range would have been to the southeast
34 across Falcon Road. The ASR does not identify the impact area for the small-arms range.
35 However, based on the orientation of the range, the impact area appears to be the base of the hill
36 located south of Falcon Road. The extreme southeastern portion of the unnamed small-arms

range was located within the Fill Area at Range 30, Parcel 231(7), and was investigated as a part of the SI for Parcel 231(7).

1.3.2 Aerial Photographs

Available aerial photographs were reviewed to reveal any land-use activity in the area of investigation. Upon review of these aerial photographs, it was not possible to match the FTMC range-use records in the EBS and ASR with observations made from the aerial photographs. The following is a summary of the review of available aerial photographs.

1937, 1940, and 1944. These aerial photographs show the area of investigation covered with grass with a significant number of disturbed areas. However, the photographs did not show a distinct land-use activity.

1954. The 1954 aerial photograph shows the area of investigation to be mostly covered with grass (Figure 1-4). Numerous disturbed areas were noted across the area of investigation, suggesting ongoing activity. One notable item on this aerial photograph is a circular feature located in the west-central portion of the area of investigation. Approximately four berms were observed just east of this circular feature. One large berm and several smaller berms were also noted in the northern portion of the area of investigation and south of the dirt road (Falcon Road) dividing the site.

1961. The 1961 aerial photograph (Figure 1-5) shows an increase in vegetative cover across the area of investigation, suggesting a decrease in activity between 1954 and 1961. In addition, the photograph shows that clearing for Reilly Airfield had extended into the area of investigation, although no paved runway extensions are present. The circular feature noted on the 1954 aerial photograph is not present in this aerial photograph. However, the berms noted in the 1954 aerial photograph are still present.

1964. The 1964 aerial photograph shows further increase in the vegetative cover across the area of investigation, suggesting a continued decrease in activity. However, it appears that improvements were made to Reilly Airfield between 1961 and 1964, and the clearing for the airfield's fly-over no longer extends into the area of investigation. The berms seen in the 1954 and 1961 aerial photographs are no longer visible.

1973. The 1973 photograph appears very similar to a 1969 photograph. The area remains covered with grass. A linear, man-made feature is noted along the eastern boundary of the area



This map employs uncontrolled aerial photographs. The resulting distortions affect the spatial accuracy of the photographs.

Figure 1-4

1954 Aerial Photograph

Range 30 Firing Line Area,
Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Alabama

Legend

— Area of Investigation

200 0 200 Feet
NAD83 State Plane Coordinates



Shaw Shaw Environmental, Inc.



Contract No. DACA21-96-D-0018



This map employs uncontrolled aerial photographs. The resulting distortions affect the spatial accuracy of the photographs.

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Figure 1-5

1961 Aerial Photograph

Range 30 Firing Line Area,
Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Alabama

Legend

— Area of Investigation

200 0 200 Feet
NAD83 State Plane Coordinates



Shaw Shaw Environmental, Inc.



Contract No. DACA21-96-D-0018

1 of investigation. During the site walk in October 2001, a man-made surface drain was noted in
2 the approximate location as the linear feature observed in this photograph.

3
4 **1976.** The 1976 aerial photograph (Figure 1-6) shows a new area of activity along the southern
5 portion of the area of investigation. In this area, the vegetation has been cleared, and two roads
6 and a berm have been constructed parallel to Falcon Road.

7
8 **1982.** The 1982 aerial photograph (Figure 1-7) shows an additional berm and dirt road
9 constructed north of Falcon Road. Four new disturbed areas are also observed on this
10 photograph. The berm extends southwest to northeast across the center portion of the area of
11 investigation. The road on this photograph extends across the northern and eastern portions of
12 the area of investigation. Much of the disturbed areas are found along the newly identified road.
13 A kidney-shaped cleared area can be found in the south-central portion of the area of
14 investigation.

15
16 **1994.** The 1994 aerial photograph is very similar to the 1982 photograph. An increase in
17 vegetative cover is noted across the area of investigation and the disturbed areas.

18
19 **1998.** The 1998 aerial photograph shows a majority of the area of investigation to be covered
20 with trees and shrubs. However, the southern portion of the area of investigation appears to have
21 been graded.



This map employs uncontrolled aerial photographs. The resulting distortions affect the spatial accuracy of the photographs.

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Figure 1-6

1976 Aerial Photograph

Range 30 Firing Line Area,
Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Alabama

Legend

— Area of Investigation

200 0 200 Feet
NAD83 State Plane Coordinates



 Shaw Environmental, Inc.



Contract No. DACA21-96-D-0018



This map employs uncontrolled aerial photographs. The resulting distortions affect the spatial accuracy of the photographs.

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Figure 1-7

1982 Aerial Photograph

Range 30 Firing Line Area,
Parcels 88Q, 102Q, and 106Q-X
Fort McClellan, Alabama

Legend

— Area of Investigation

200 0 200 Feet
NAD83 State Plane Coordinates



 Shaw Environmental, Inc.



Contract No. DACA21-96-D-0018

2.0 Previous Investigations

An EBS was conducted by ESE to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with DOD guidance for fast-track cleanup at closing installations. The EBS also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria:

1. Areas where no storage, release, or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas)
2. Areas where only release or disposal of petroleum products has occurred
3. Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response
4. Areas where release, disposal, and/or migration of hazardous substances has occurred, and all removal or remedial actions to protect human health and the environment have been taken
5. Areas where release, disposal, and/or migration of hazardous substances has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken
6. Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented
7. Areas that are not evaluated or require additional evaluation.

For non-Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) environmental or safety issues, the parcel label includes the following components: a unique non-CERCLA issue number; the letter "Q" designating the parcel as a Community Environmental Response Facilitation Act [CERFA] Category 1 Qualified parcel; and the code for the specific non-CERCLA issue(s) present (ESE, 1998). The non-CERCLA issue codes used are:

- A = Asbestos (in buildings)
- L = Lead-based paint (in buildings)
- P = Polychlorinated biphenyls
- R = Radon (in buildings)
- RD = Radionuclides/radiological issues
- X = UXO
- CWM = Chemical warfare material.

1
2 The EBS was conducted in accordance with CERFA protocols (CERFA-Public Law 102-426)
3 and DOD policy regarding contamination assessment. Record searches and reviews were
4 performed on all reasonably available documents from FTMC, the Alabama Department of
5 Environmental Management (ADEM), the U.S. Environmental Protection Agency (EPA) Region
6 4, and Calhoun County, as well as a database search of CERCLA-regulated substances,
7 petroleum products, and Resource Conservation and Recovery Act-regulated facilities.
8 Available historical maps and aerial photographs were reviewed to document historical land
9 uses. Personal and telephone interviews of past and present FTMC employees and military
10 personnel were conducted. In addition, visual site inspections were conducted to verify
11 conditions of specific property parcels.

12
13 Parcels 88Q, 102Q, and 106Q-X are areas where no known or recorded storage, release, or
14 disposal (including migration) has occurred on site property. The parcels, however, were
15 qualified because chemicals of potential concern and/or UXO (at Parcel 106Q-X) may be present
16 as a result of historical range activities. Therefore, these parcels required additional evaluation to
17 determine their environmental condition.

18
19 Shaw previously investigated three parcels that partially overlap or are adjacent to the area of
20 investigation for this SI, as summarized below.

21
22 **Site Investigation at Parcels 227(7) and 126(7).** The Fill Area East of Reilly Airfield,
23 Parcel 227(7), and the Post Garbage Dump, Parcel 126(7), are located northeast of the area of
24 investigation. A small portion of 227(7) overlaps the northwestern area of this investigation.

25
26 Shaw conducted a geophysical survey at the Fill Area East of Reilly Airfield, Parcel 227(7) and
27 the Former Post Garbage Dump, Parcel 126(7) from September 1998 to March 1999 (IT, 2002c).
28 The total area surveyed was about 32 acres. The geophysical survey located large-scale disposal
29 areas, landfill pits, anomalous high conductivity areas, isolated buried metallic objects, and
30 surface metallic debris.

31
32 Thirteen temporary wells were installed in the residuum groundwater zone at the Fill Area East
33 of Reilly Airfield and three temporary wells were installed at the Former Post Garbage Dump.
34 Surface soil samples were collected from six locations and depositional soil samples were
35 collected from seven locations at the Former Post Garbage Dump and the Fill Area East of Reilly
36 Airfield.

1 Surface and subsurface soils, groundwater, and surface water/sediment were sampled and
2 analyzed as part of the investigation (IT, 2002c).

3
4 Seventeen exploratory trenches were excavated at the Fill Area East of Reilly Airfield and the
5 Former Post Garbage Dump to characterize the horizontal and vertical extent of the fill material
6 (IT, 2001). Trenches were excavated to depths ranging from 10 to 15 feet bgs. Fill material
7 typical of a landfill was observed in 16 of the 17 trenches.

8
9 Five borings were installed at the Fill Area East of Reilly Airfield and the Former Post Garbage
10 Dump to investigate the depth of fill material and to identify chemicals of potential concern
11 within the fill material. Fill material borings were installed to depths ranging from 10 to 18 feet
12 bgs.

13
14 The vertical and horizontal extent of the waste fill at the Fill Area East of Reilly Airfield and the
15 Former Post Garbage Dump was estimated based on information gathered from the site
16 investigation and trenching and boring activities. The approximate horizontal extent of fill in
17 both parcels covers 6.4 acres. The average depth of fill material estimated from the trench and
18 boring log data is 8 feet at the Fill Area East of Reilly Airfield and 3 feet at the Former Post
19 Garbage Dump.

20
21 **Site Investigation at Parcel 231(7).** The Fill Area at Range 30, Parcel 231(7) borders the
22 area of this investigation to the southeast. Eleven soil borings and four temporary groundwater
23 monitoring wells were installed as part of the SI conducted at the Fill Area at Range 30, Parcel
24 231(7). Surface and subsurface soils, groundwater, and surface water/sediment were sampled
25 and analyzed as part of the investigation (IT, 2002c).

26
27 Shaw installed two fill material borings and collected fill samples at Parcel 231(7) in March
28 2000 to characterize the waste fill. Six exploratory trenches were excavated at the Fill Area at
29 Range 30. Trenches were excavated at depths ranging from 2.5 to 8 feet bgs.

30
31 Fill material was observed in five of the six trenches and included: metal pipes and straps, glass,
32 red bricks, reddish-orange sand and silt, light brown silt, cobbles, black coal, orange/red sand
33 and clay, plastic chip bag, plastic sheeting, beer cans, styrofoam, plastic oil containers,
34 corrugated pipe, concrete chunks, ceramic pieces, tree limbs, carpet, and plastic trash bags.

35
36 The vertical and horizontal extent of fill material at the Fill Area at Range 30 was estimated
37 based on information gathered from previous site investigations and trenching and boring

1 activities. The fill area covers approximately 3.9 acres. The average depth of fill material
2 estimated from the trench and boring log data is approximately 4 feet bgs.
3